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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,064	08/03/2001	Craig F. Valenti	1286-US	7573
9941	7590	08/23/2004	EXAMINER	
TELCORDIA TECHNOLOGIES, INC. ONE TELCORDIA DRIVE 5G116 PISCATAWAY, NJ 08854-4157			SINGH, RAMNANDAN P	
			ART UNIT	PAPER NUMBER
			2644	8

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/922,064

**Applicant(s)**

VALENTI ET AL.

**Examiner**

Ramnandan Singh

**Art Unit**

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 3-8, 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

#### **Response to Arguments.**

1. Applicant's arguments with respect to claims 1 and 9, filed 14 June 2004, have been fully considered but they are moot in view of the new ground(s) of rejection.

#### **2. Status of Claims**

Claims 1, 3, 7 and 9 are amended.

Claims 1-12 are pending.

#### ***Terminal Disclaimer***

3. The terminal disclaimer filed on 14 June 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Application No. 10/209,547 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### ***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry [US20010012321 A1] .

**Regarding claim 1**, Terry teaches a method of identifying the source of crosstalk disturbance in a twisted pair telephone lines (.e. **subscriber lines**) shown in Fig. 1 [Para. 0002; 0004; 0017; 0025], the method comprising:

measuring (i.e. **determining**) a power spectral density (PSD) of the noise present in a subscriber line in absence of main signals supplied to the subscriber loop;

correlating (i.e. **comparing**) the determined PSD with that of stored PSD **templates** of communication systems (i.e. **crosstalk sources**) [Para: 0014; 0030] wherein correlation inherently requires a comparison; and select (i.e. **identify**) a communications system (i.e. a **crosstalk source**) having the most closely determined power spectrum density [ Para:0010- 0014; 0030; 0033; claims 1-3].

Terry does not teach expressly correlating (i.e. comparing) a monitored PSD with a predetermined set of PSDs for a group of possible crosstalk disturbers (i.e. multiple crosstalkers per channel).

Although Terry teaches correlating (i.e. **comparing**) the monitored PSD of the subscriber loop with that of **stored PSD templates** of communication systems (i.e. **crosstalk sources**) wherein each template represents a single crosstalker and one cross coupling for each communication channel; at the time of the invention, it would have been obvious to a person of ordinary skill in the art to store PSD templates of any number of a group of possible crosstalk disturbers in an operational communication system in order to compare the monitored PSD with the stored PSDs of the crosstalk disturbers subject to circuit, system and design constraints.

Claim 9 is essentially similar to claim 1 and is rejected for the reasons stated above.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terry as applied to claim 9 above, and further in view of van Bavel et al [US 6,101,172].

Regarding claim 10, Terry does not teach subtracting the power spectrum density (PSD) of the selected crosstalk disturber from the determined PSD of the subscriber loop using spectral subtraction to generate a residual (i.e. **a margin**) PSD.

van Bavel et al teaches a method of identifying the source of crosstalk disturbance in a subscriber loop (i.e. HDSL2) shown in Fig. 1 [col. 1, lines 56-67] based on spectral subtraction. Table-3 presents the subtraction results with a group of crosstalk sources (i.e. disturbers) including the selected crosstalk disturber [Figs. 2-3; col. 1, lines 47-55; col. 3, lines 50-53; col. 5, line 11 to col. 7, line 21].

Terry and van Bavel et al are analogous art because they are from a similar problem solving area, viz. , crosstalk reduction in a subscriber loop.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the spectral subtraction technique of van Bavel et al with Terry.

The suggestion/motivation for doing so would have been to implement various techniques to reduce the input of crosstalk and improve the quality of communications over twisted pair loops bundled with each other [van Bavel et al ; col. 1, lines 57-67].

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Terry and van Bavel et al as applied to claim 10 above, and further in view of Chan [US 6,529,906 B1].

Regarding claim 11, the combination of Terry and van Bavel et al does not teach expressly mapping negative residual power spectral densities into a non-negative value. However, this mapping of a negative value (i.e. **a negative number**) into a non-negative value (i.e. **a non-negative number**) is well-known in the art.

Chan demonstrates an application of the above mapping function shown in Fig. 10A wherein he changes a value of a weight from a negative value to a non-negative value [col. 21, line 63 to col. 22, line 16].

Terry , van Bavel et al, and Chan are analogous art because they are from a similar problem solving area, viz. ,electronic communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the mapping function of Chan to map a negative PSD value to a non-negative PSD value with the combined system of Terry and van Bavel et al.

The suggestion/motivation for doing so would have been to implement the mapping function of Chan to avoid the problem causing discontinuity (singularity) in a computation process as well as to make the residual PSD physically realizable in an engineering practice.

***Allowable Subject Matter***

8. Claims 2-8, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Examiner's Statement of Reasons for Allowance:

Claim 2 identifies the uniquely distinct feature of a method for identifying the source of crosstalk disturbance in a subscriber loop comprising the steps of: subtracting the power spectral density for the selected crosstalk disturber from the measured power spectral density of said subscriber loop using spectral subtraction to generate a residual power spectral density; correlating the residual power spectral density with the predetermined set of power spectral densities for the group of possible crosstalk disturbers; and, selecting the crosstalk disturber having the most closely correlated power spectral density. As such, claim 1 requires correlating the residual power spectral density with the predetermined set of power spectral densities for the group of possible crosstalk disturbers. While the closest prior art, Terry [US 20010012321 A1], van Bavel et al [US 6,101,172] and Chan [US 6,529,906 B1] each teach comparing a PSD with another PSD, Terry using a monitored PSD with stored PSD templates of communication systems, van Bavel et al using an improved PSD template and Chan using a mapping function; none of them suggest correlating the residual power spectral density with the predetermined set of power spectral densities for the group of possible



crosstalk disturbers. As such, the prior art, either singularly or in combination, fail to anticipate or render the above limitation obvious. Therefore, claim 2 is allowable.

Claims 3-8 are allowable due to dependence from claim 2.

Claim 12 is allowable for the reasons stated in claim 2 above.

### ***Conclusion***

**10. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

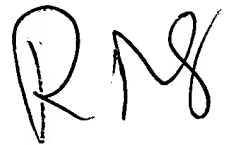
**11.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh  
Examiner  
Art Unit 2644

A handwritten signature in black ink, appearing to be 'R N S' or similar, located to the right of the printed name.